



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,323	10/27/2003	Pankaj Mchra	200309900-1	3837
22879 7590 07/17/2007 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER FEARER, MARK D	
			ART UNIT 2143	PAPER NUMBER
			MAIL DATE 07/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/694,323	Applicant(s) MEHRA, PANKAJ	
	Examiner Mark D. Fearer	Art Unit 2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 11-12 are objected to. They should depend on independent claim 10. They currently depend on dependent claim 15. For purposes of examination, claims 11-12 are treated as being dependent on claim 10. Corrective action required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim contains wording such as 'or' that offers choices, i.e., "... if the identifier value matches a value in the topology information, permitting the switch to route packets over the functional link; or if the identifier value does not match a value in the topology information, ...".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art. Unit: 2143

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13 and 15-17 is rejected under 35 U.S.C. 102(b) as being anticipated by Sawada et al. (US 6907470 B2).

Consider claim 13. Sawada et al. clearly shows and discloses a method performed by a switch contained in a system, comprising: the switch detecting a link down event associated with said switch, said link down event indicative of a link from the switch to an entity becoming non-functional; receiving a packet into said switch ((“In accordance with the present invention, a packet communications apparatus is provided that is used in a network system wherein user terminals that can be linked via a network to the apparatus send/receive packets to/from a server ...”) column 1 lines 65-67 and column 2 lines 1-2); the switch determining if said packet is to be routed out through a port associated with the detected link down event; and if the switch determines that the packet is to be routed out through a port associated with a detected link down event, the switch discarding the packet ((“A further feature of the present invention is that each network interface includes a link down detector and the packet communications apparatus can change the state of the network interface to disconnected state when the link down detect detects link-down.”) column 3 lines 8-12).

Consider claim 15, and as applied to claim 13 above. Sawada et al. clearly shows and discloses a method including detecting a link up event associated with a switch indicative of a newly established link from the switch to an entity and requesting

the entity to provide a unique identifier to the switch ("... a learned address table containing information for identifying a network interface through which to send a packet, a packet forwarding unit that selects a port through which to forward a packet by referring to the learned address table, according to the state of the network interfaces, and forwards or discards a packet sent from the user terminal, addressed to the server for authentication/file server and vice versa, a processor for directive packets to change state that receives a directive packet to change state, holding a directive to change the state of a specific network interface to one of the connected state, ...") column 2 lines 4-14).

Consider claims 16 and 17, and as applied to claim 15 above. Sawada et al. clearly shows and discloses a method wherein a switch receiving a unique identifier from the entity, comparing the unique identifier received from the entity to state information contained in the switch and, if the unique identifier from the entity does not match a value in the state information, discarding a packet destined for the entity, or, if the unique identifier from the entity matches a value in the state information, permitting packets destined for the entity to be routed from the switch to the entity ("A packet communications apparatus of the present invention essentially comprises a plurality of network interfaces (NIFs), a learned address table, a packet forwarding unit (PFU) and a processor for directive packets to change state (PDPCS). The learned address table contains information for identifying a NIF through which to send a packet. The PFU selects a port through which to forward a packet by referring to the learned address table, according to the state of the NIFs, and forwards or discards a packet received

Art Unit: 2143

from a user terminal. The PDPCS receives a packet including a directive to change the state of a specific NIF to one of the connected state, disconnected state and stateless. The PDPCS changes the state of the specific NIF to one of the connected state, disconnected state and stateless, according to the directive in the packet.") abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shabtay et al. (US 20040047336 A1) in view of Rodeheffer et al. (US 20050036500 A1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Consider claims 1, 7 and 10. Shabtay et al. discloses a switch ("Stackable switches are bridging devices which are formed internally by a plurality of bridging devices, connected by internal links.") paragraph 0007), comprising: a plurality of ports and end nodes ("Local communication networks generally comprise a plurality of bridging devices and communication links. Each communication link connects between two or more bridging devices or between one or more bridging devices and one or more end-stations, e.g., computers. Each bridging device comprises a plurality of ports which serve as interfaces between the bridging device and the links to which it is connected.") paragraph 0003); a plurality of link up/down detection logic units, each link up/down detection logic unit is associated with a port and detects a change in the state of a link

associated with the port ((“One or more links of the cluster are pre-designated as redundant links which are activated in case other links of the network fail. Preferably, each redundant link is associated with one or more links, the failure of which (in combination and/or alternatively) induce the activation of the redundant link. Preferably, the predetermined links are not necessarily connected to a common bridging device with all the associated links. Preferably, when a link fails, a bridging device adjacent the failed link notifies a bridging device which is adjacent the redundant link associated with the failed link. The notified bridging device then activates the redundant link.”))

paragraph 0011). However, Shabtay et al. fails to disclose a configuration validation checker coupled to each of the link up/down detection logic units, said configuration validation checker causes the switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change. Rodeheffer et al. discloses smart bridges that act as configuration checkers ((“The smart bridges are configured to initiate a host locations initialization process upon detecting a change in network topology.”) paragraph 0013) and routers (communications initialization module) for determining the best paths when changes occur ((“The ports 410 keep the segment inventories 430 up to date. When a network topology change is detected, the topology acquisition module 422, exchanges topology acquisition packets with other bridges via data channel 422a and ports 410, and eventually obtains the total network report 440. The total network report 440 lists each bridge-to-segment connection in the network. Based on the total network report 440, the communications initialization module 424 computes the location revision grandparent (LRG) 450, the location revision child (LRC)

table 452, the network flood active port connection (NFA) table 460, the network flood reaching (NFR) table 462, the best path forwarding (BPF) table 470, and the best path sourcing (BPS) table 472.") paragraph 0093).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate smart bridges that act as configuration checkers and routers for determining the best paths when changes occur as taught by Rodeheffer et al. with a switch, comprising: a plurality of ports; a plurality of link up/down detection logic units, each link up/down detection logic unit is associated with a port and detects a change in the state of a link associated with the port as taught by Shabtay et al. for the purpose of using smart bridges to manage network topology changes.

Consider claims 2, 8 and 11, and as applied to claims 1, 7 and 10, respectively. Shabtay et al. discloses a switch wherein a link up/down detection logic unit informs a configuration validation checker when a link to an associated port becomes non-functional. However, Shabtay et al. fails to disclose a validation checker discarding packets. Rodeheffer et al. discloses packets being discarded if a bridge state is currently off ("When the operational state is FALSE, the communications operation function (508) and the location revision function (510) discard all received packets without processing them, as may be noted in the relevant flowcharts.") Paragraph 0376).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate packets being discarded if a bridge state

is currently off as taught by Rodeheffer et al. with a switch wherein a link up/down detection logic unit informs a configuration validation checker when a link to an associated port becomes non-functional as taught by Shabtay et al. for the purpose of transport intermediaries effectively routing communications.

Consider claims 3, 9 and 12, and as applied to claims 1, 7 and 10, respectively. Shabtay et al., as modified by Rodeheffer et al., discloses a switch wherein a link up/down detection logic unit informs a configuration validation checker when a link to an associated port becomes non-functional, and the configuration validation checker responds by discarding all packets destined to that link ((“Preferably, the managing bridging-device is connected to the redundant link through a predetermined port. Further preferably, only the managing bridging-device is permitted to change the status of an operative link from active to blocked.”) Paragraph 0029).

Consider claim 4, and as applied to claim 1 above. Shabtay et al. discloses a switch wherein a link up/down detection logic unit informs a configuration validation checker when a non-functional link to an associated port becomes functional. However, Shabtay et al. fails to disclose a configuration validation checker responding to a non-functional link notification by: receiving an identifier value from an entity coupled to the switch via the functional link; comparing the identifier value received from the entity with topology information contained in the switch; and if the identifier value matches a value in the topology information, permitting the switch to route packets over the functional link; or if the identifier value does not match a value in the topology information, discarding all packets targeting the functional link. Rodeheffer et al. discloses a method

Art Unit: 2143

wherein if a bridge state is currently off, packets are discarded. If a bridge state is on, index values are compared against stored values ("In step 3902 the bridge checks if its operational state is TRUE. If not, the bridge has no further actions to perform and the revision wavefront packet is discarded. Otherwise the bridge proceeds to step 3904, where it checks the wavefront index number W to determine if the packet corresponds to a new or an old wavefront. If W is less than LRNEW, it is an old wavefront and all the bridge has to do is send an acknowledgment, which it does in step 3906. If W equals LRNEW, it is a new wavefront and the bridge proceeds to step 3908. Since the neighbor bridge C does not send a packet for wavefront W+1 until this bridge acknowledges wavefront W, it is unlikely that W is even greater than LRNEW; but if so, the bridge just discards the packet.") Paragraph 0394).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a method wherein if a bridge state is currently off, packets are discarded and if a bridge state is on, index values are compared against stored values as taught by Rodeheffer et al. with a switch wherein a link up/down detection logic unit informs a configuration validation checker when a non-functional link to an associated port becomes functional as taught by Shabtay et al. for the purpose of effectively routing packets.

Consider claim 5, and as applied to claim 1 above. Shabtay et al. discloses a switch wherein a configuration validation checker receives topology information. However, Shabtay et al. fails to disclose a configuration validation checker receiving topology information from an entity external to the switch and comparing the received

Art Unit: 2143

topology information to topology information contained in the switch. Rodeheffer et al. discloses a method wherein topology information contained in the memories of individual bridges (read switches) is compared against a network report of topology information ((“Communications initialization is performed by each bridge separately based on the total network report. Communications initialization first invokes a create graph function to convert the total network report into an equivalent but more useful data structure called the network topology graph. Whereas the total network report is more suitable for the collection and distribution functions of topology acquisition, the network topology graph is more suitable for the subsequent functions performed by communications initialization. The conversion is preferably deterministic, so that from identical copies of the total network report each bridge constructs an identical copy of the network topology graph.”) Paragraph 0061).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a method wherein topology information contained in the memories of individual bridges is compared against a network report of topology information as taught by Rodeheffer et al. with a switch wherein a configuration validation checker receives topology information as taught by Shabtay et al. for the purpose of annotating a switch topology file.

Consider claim 6, and as applied to claim 5 above. Shabtay et al. discloses a switch wherein a configuration validation checker receives topology information. However, Shabtay et al. fails to disclose a switch wherein if topology information contained in the switch does not match topology information received from an external

Art Unit: 2143

entity, preventing the newly received topology information from being used by the switch. Rodeheffer et al. discloses a location revision wavefront separating old bridge information from new ("A wavefront that revises the location of a host is treated by the bridges of the system as an impenetrable barrier to packets to or from the host. The wavefront separates "old" bridges that are using the "old" location of the host from "new" bridges that are using the "new" location of the host. Therefore, the wavefront prevents any confusion regarding the location of the host.") Paragraph 0071).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a location revision wavefront separating old bridge information from new as taught by Rodeheffer et al. with a switch wherein a configuration validation checker receives topology information as taught by Shabtay et al. for the purpose of predicting communication performance.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada et al. (US 6907470 B2).

Consider claim 14, and as applied to claim 13 above. Sawada et al. discloses a method including if a switch determines that a packet is to be routed out through a port associated with a detected link down event ("... includes a link down detector and the packet communications apparatus can change the state of the network interface to disconnected state when the link down detect detects link-down.") column 3 lines 9-12), discarding all packets received by the switch ("... change filtering that updates the contents of the filtering table by a directive from the external, and to the filtering tables

Art Unit: 2143

whose contents are initially set to discard all received packets, ...) column 3 lines 34-38).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate discarding all packets received by a switch as taught by Sawada et al. with a switch determines that a packet is to be routed out through a port associated with a detected link down event as taught by Sawada et al. for the purpose of blocking all communications associated with a downed link.

Conclusion

Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the

Art Unit: 2143

Examiner should be directed to Mark Fearer whose telephone number is (571) 270-1770. The Examiner can normally be reached on Monday-Thursday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Mark Fearer
M.D.F./mdf
June 28, 2007


DAVID WILEY
SUPERVISOR, PATENT EXAMINER
TECHNOLOGY CENTER 2100